Harvard Apparatus Syringe Pumps

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Tool Type: Programmable Dual Syringe Pump
Location: Microfluidics Lab
Description: “Dual Syringe Pump for droplet generation and other milli/microfluidic experiments”
Manufacturer: “Harvard Apparatus”

About

Syringe pumps utilize a stepper motor, lead screw, and pusher block to dispense fluid from a syringe at a controlled rate. Some syringe pumps, such as this one, can accommodate more than one syringe. These HA pumps can accommodate two syringes, which allows for the use of two different fluids (co-flow, sheathed flow, etc.), or alternatively to double the volume of a single fluid by using a second syringe.

Syringe pumps are flow-rate-controlled devices, which means that you program the pump to operate at a fixed flow rate regardless of the pressure required. (As opposed to pressure-controlled devices which fix the pressure.)

Detailed Specifications

See product manual for extended specifications.

Maximum force: 50 lb (200 N)
Minimum syringe size & minimum flow rate: 0.5 uL @ 0.0001 uL/hr
Maximum syringe size & maximum flow rate: 140 mL @ 220 mL/min

Safety Concerns

Pinching Hazard - Be careful when loading syringes to avoid pinching oneself with the syringe holders.

High Pressure Hazard - Always wear goggles when operating syringe pumps. If too much pressure accumulates in your system, often due to clogging, your tubing or attached fluidic devices can rupture. This can create a jet of fluid which presents a physical hazard to those nearby.

Operating Procedures

Please reference the attach operation manual for detailed operating instructions.

General Operation
1) Select your syringe size using either the measured internal diameter of the syringe (recommended) or the built-in syringe lookup table.
2) Install and fill your syringe(s).
3) Select the desired flow rate.
4) Select the desired target volume (optional). If you set a target volume and operate in volume mode, pumping will automatically cease when the target volume has been reached. Otherwise, the pump will not stop until manually turned off.
5) When finished, remove syringes, power off the pump, and clean the pump if contaminated by any fluid during your experiment.

Reference Documentation

702000_syringe_pumps_manual.pdf